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**JOHN F. KENNEDY SPACE CENTER
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**Evaluating Education and Science in the KSC
Visitor Complex Exhibits**

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ABSTRACT

The continuing development of exhibits at the Kennedy Space Center's Visitor Complex is an excellent opportunity for NASA personnel to promote science and provide insight into NASA programs & projects for the approximately 3 million visitors that come to KSC annually. Stated goals for the Visitor Complex, in fact, emphasize science awareness and recommend broadening the appeal of the displays and exhibits for all age groups. To this end, this summer project seeks to evaluate the science content of planned exhibits/displays in relation to these developing opportunities and identify specific areas for enhancement of existing or planned exhibits and displays.

To help expand the educational and science content within the developing exhibits at the Visitor Complex, this project was structured to implement the goals of the Visitor Center Director. To accomplish this, the exhibits and displays planned for completion within the year underwent review and evaluation for science content and educational direction. Planning emphasis for the individual displays was directed at combining the elements of effective education with fundamental scientific integrity, within an appealing format.

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1. Introduction

Preliminary discussion of the goals of this project were used to define the scope of the work for the summer. That effort is to assist with the improvements in the KSC Visitor Complex exhibits in the areas of general science and education. This was to include assisting in the communication of NASA's operations and interests to visitors at the complex, and to help introduce science and technology to the visitors through the displays and exhibits being planned.

2. Project Description

Organization of this project began with the identification of the galleries and exhibits that were undergoing development and that would be completed within one year. The primary focus was on these exhibits because of the need for input during the development stages. Suggestions and/or recommendations for educational and scientific content in these exhibits were needed before the exhibit designs were essentially fixed. Other displays and exhibits could be reviewed during the summer project as time provided, and were, as outlined in the appendix.

Review procedures for the exhibits began with a discussion of the planning documents with the Director and Assistant Director. A summary of recommendations/suggestions was composed for several of the exhibits and discussed. At this point, the elements of educational content were introduced and recommendations made for the first series of exhibits.

The first exhibit/gallery review was made at the beginning of the project on the "Exploration in the New Millennium." The content and character of the exhibits and displays was evaluated for accuracy and continuity, with several suggestions outlined (see Appendix A). Some modification of the displays was recommended, and an addition of a night sky display suggested. More detailed discussion on the gallery continued through the summer program, with some adjustments and modifications being integrated into the gallery under the direction of the Visitor Complex Director.

An important exhibit area under redesign during the coming year was the Rocket Garden, a collection of mostly early manned space flight rockets and propulsion

engines. Since many of the rockets on display are historically important in NASA's evolution, a recommendation was made to expand the exhibits to include information on the background of space flight propulsion, and the importance of the individual launch vehicles (see Appendix B).

During a paper presentation on this NASA-ASEE project in early summer, I had the opportunity to visit to the Adler Planetarium, which provided some insight into similar display and exhibit development. Another astronomer had help direct the exhibit development at the Planetarium and described the educational and scientific components within the planning, design, and installation of the newer displays. Those fundamental educational elements were adopted, in part, as the recommended development procedures for the KSC Visitor Complex future exhibits.

Discussions with the education office of the American Astronomical Society indicated the need for education specialists within the review and recommendation process if the exhibits are to provide significant educational benefit. Professional advice on educational aspects of exhibit development was also suggested because of the broad age groups targeted for the future displays. These suggestions for education specialists are included in the conclusions of this report. Consultation with the NASA-HQ Education Office also provided several evaluation principles for the educational content within the planning and implementation process.

Subsequent exhibit/gallery reviews at the Complex included the Apollo/Saturn V Center and the International Space Station Center. Both of these visitor sites were already completed, but were considered useful for educational review because of their large impact on the visitors. Suggestions for additions or alterations are listed in the appendices.

3. Results

A series of reviews for the various galleries, exhibits and displays at the KSC Visitor Complex was made during the summer program as part of the project. Those reviews were incorporated into recommendations, originally appearing in several memos to the Visitor Complex Director. The recommendations cover specific and general objectives, primarily within the exhibits of focus. Other recommendations and suggestions cover other exhibits/displays, and can be found within the appendix.

The highest level recommendations developed during this summer project were related to educational principles and planning. Recommendations from the staff at the Adler Planetarium, The American Astronomical Society, and the NASA-HQ Education Office indicate a need for planning at all stages for exhibits with educational intent. Although some of these displays and/or exhibits must also

provide an interesting and imaginative character, the primary content should adhere to the fundamentals of learning. To accomplish this ideal, is recommended that the following structure be adopted for exhibit/display development.

- A. To identify both specific and general interests of the visiting public, one or more surveys should be conducted with the educational and information objectives of the Visitor's Complex in mind. The sampling/surveys could be conducted at the Center, or through mail-in questionnaires. Although this step is not necessary for individual exhibit development, it would be useful for identifying program interests, or for planning multiple exhibit projects.
- B. One of the fundamental steps in exhibit planning & development is to identify the basic concepts to be covered within the planned exhibits. An outline of the concepts should include the goals and objectives of each of the concepts that make up the exhibit/display. This serves as the foundation of the educational content review.
- C. Once the objectives and goals have been established, an educational consultant should be used to verify the information and/or learning content and efficacy of the planned exhibits. This is important for evaluating the educational displays, and may also be useful for a review of any amusement-oriented displays.
- D. An evaluation of each of the exhibits by a survey team before it is placed on permanent display is recommended. Several styles of evaluation could be used for the exhibits/displays including; 1) a survey of children and/or adults interacting directly with the individual exhibits; 2) a broad survey of several exhibits evaluating the direct interest and comparative interest in the exhibits.
- E. Follow-on surveys were highly recommended to evaluate the public interest in the exhibits, which could also be very useful for estimating the public's interest in a number of space and related-science areas.

A more general suggestion on increasing the effectiveness of exhibits and displays at the Visitor Complex includes increasing the continuity between exhibits throughout the Complex to increase the synthesis of information for the visitors. An example of linking/integrating exhibits at the Complex would be a listing of the uses for and current flights of launch vehicles/rockets at KSC/CCAFS. This could be a listing within the Rocket Garden. Long-duration research and laboratories at KSC/CCAFS could also be included in the International Space Station Center exhibits to assist the public in understanding the KSC role in space exploration.

It is also strongly recommend that direct coordination of the exhibit & display development be made with the NASA Education Offices at Headquarters, and at

other centers. Those resources can help establish the educational benefits and content of the displays intended for that purpose. Second-year efforts in the project would include the establishment and maintenance of contacts between the Visitor Complex management and the Education offices of NASA.

4. Conclusions

A complete planning process for public education exhibits, including establishing goals and objectives, was emphasized by the educational staff affiliated with the Adler Planetarium, the American Astronomical Society and the NASA Education Office. Because of the emphasis on planning within these organizations, it is recommended that the planning activities in exhibit & display development include goals and objectives of the individual displays be adopted. Similarly, it is recommended that visitor surveys be conducted before the development of new exhibits at the complex, and that surveys follow the installation of new exhibits for evaluation of the effectiveness. Evaluation of existing exhibits could also be conducted with survey instruments before modifications/additions are developed.

Because one of the major goals and current efforts of the Visitor Complex management includes broadening the appeal of the exhibits for all age groups, emphasis on the addition to many of the exhibits for children is strongly supported.

Integration of the visitor exhibits is also suggested to increase the awareness of the visitors to the exhibit elements, and to help the visitor understand some of the technologies and difficulties associated with the space flight and space launch programs. An attempt was made in these recommendations/suggestions to help integrate the various visitor sites and exhibits.

Follow-on efforts to this project would concentrate on the coordination of the planning stages of exhibits while defining the goals and objectives for the exhibits/displays, and helping to integrate the exhibits to other NASA visitor sites and space flight efforts at KSC, and throughout NASA.

Appendices

A summary of the suggestions to the Director of the Kennedy Space Center Visitor Complex were included in the final report, but have been edited from this document due to space limitations. These suggestions and recommendations are part of earlier reports and reviews made as part of the summer project. To obtain a copy of the appendices, please contact Dr. Lance Erickson:
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